

Assembled 3D Joint

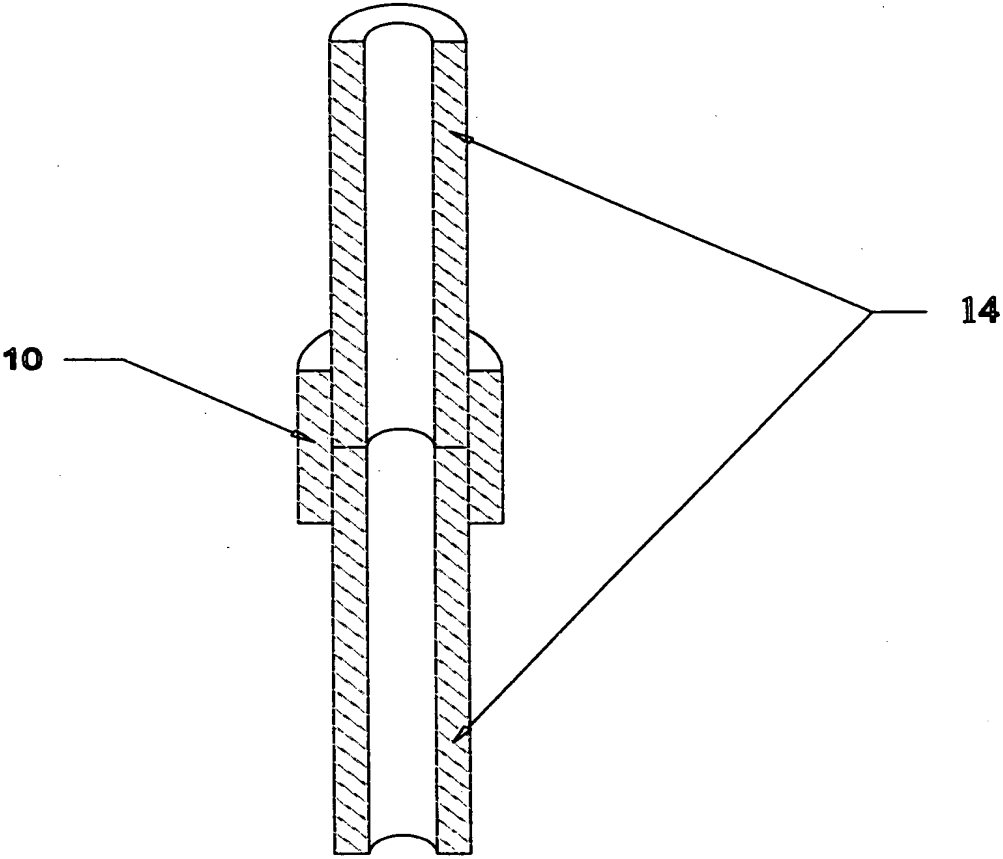


FIG. 1

Tapered 3D Joint

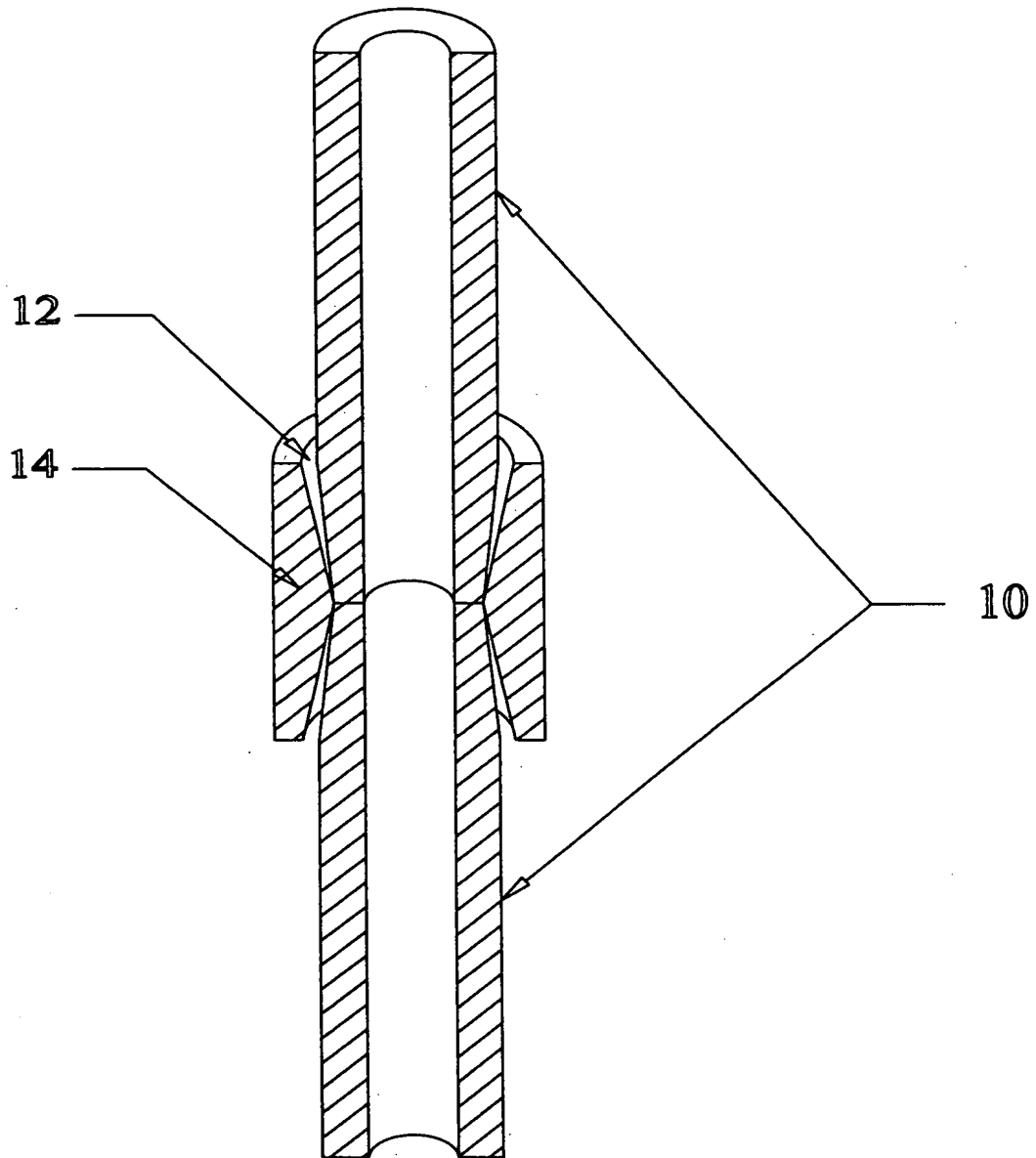


FIG. 2

Large diameter
to small diameter
lap joint

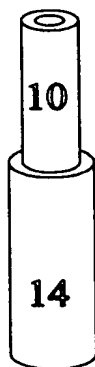


FIG. 3a

Elbow
bend
joint

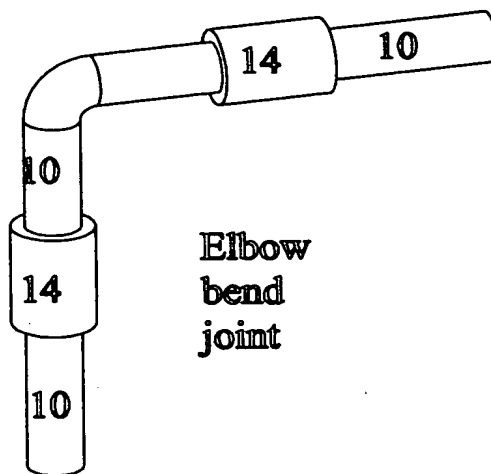


FIG. 3b

U-bend
joint

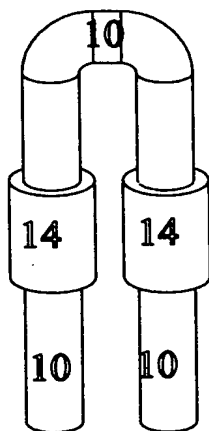


FIG. 3c

Y-bend
joint

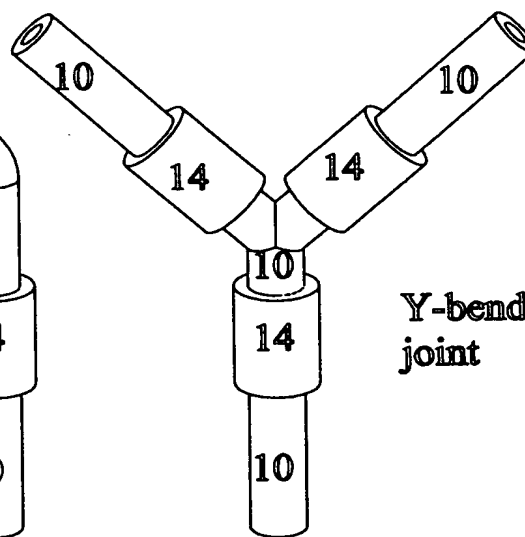


FIG. 3d

Manifold
Configuration

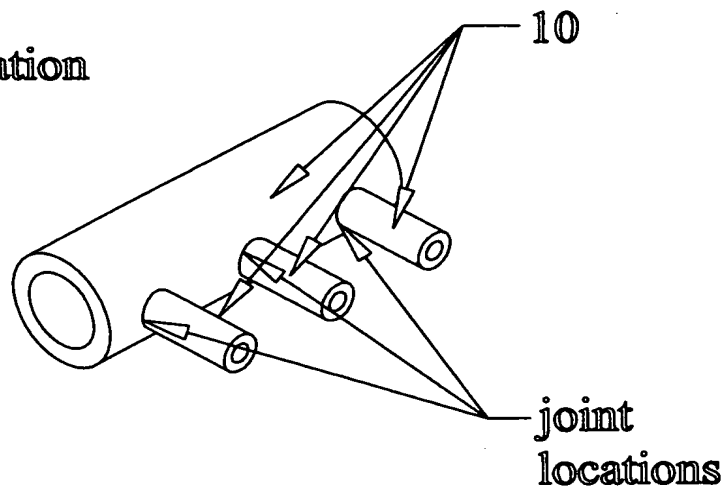


FIG. 4a

Corner
Edge
Joint

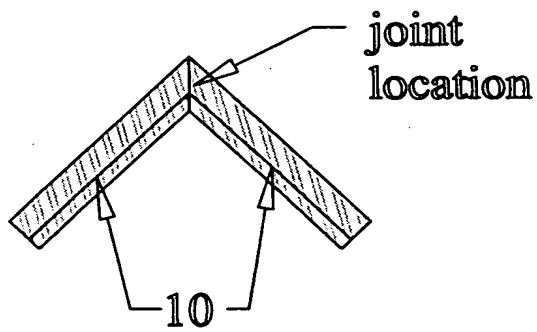


FIG. 4b

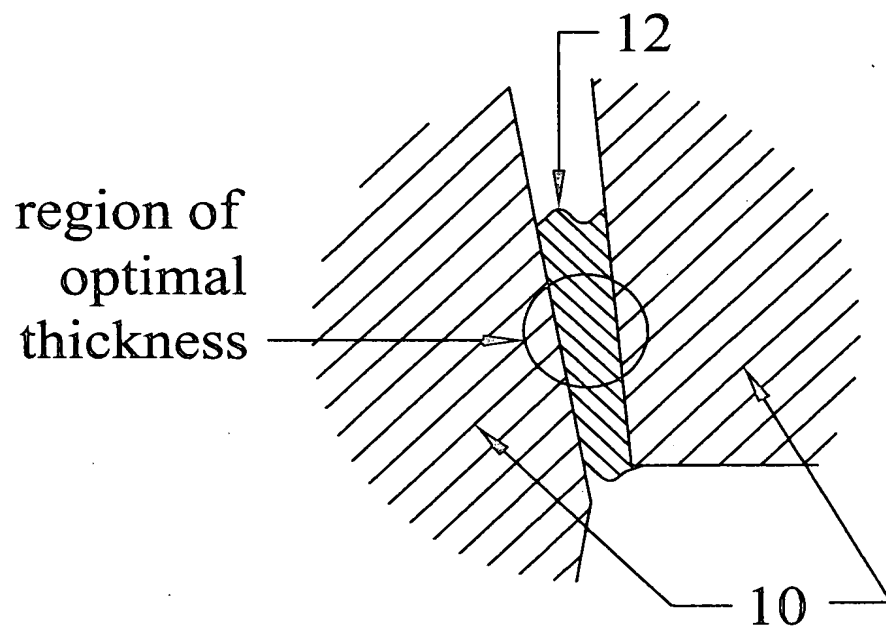


FIG. 5

3D Joint Fabrication Process

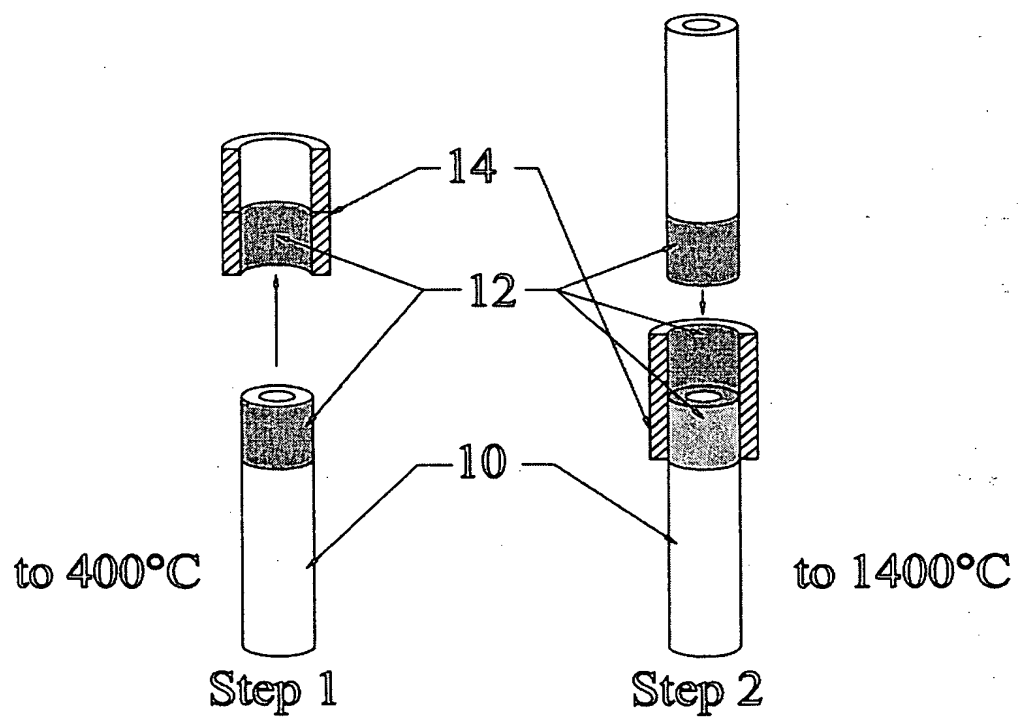


FIG. 6